Original Article

Investigating Self-Reported Violations of the Drivers of Bandar Abbas City and Its Relation with Their Knowledge and Attitude Regarding Traffic Regulations

Mehdi Jahangiri, Teamur Aghamolaei[1], Shokrollah Mohseni[2], Sara Mohammadpour[3], Nazanin Sallari[3], Abdolhamid Tajvar[1]

Department of Occupational Health Engineering, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran, [1]Social Determinants in Health Promotion Research Center, Hormozgan Health Institute, Hormozgan University of Medical Sciences, Bandar Abbas, Iran, [2]Student Research Committee, Shiraz University of Medical Science, Shiraz, Iran, [3]Student Research Committee, Hormozgan University of Medical Science, Bandar Abbas, Iran

ORCID:

Mehdi Jahangiri: https://orcid.org/0000-0001-6430-7712
Teamur Aghamolaei: https://orcid.org/0000-0002-2504-8014
Shokrollah Mohseni: https://orcid.org/0000-0001-5737-3367
Sara Mohammadpour: https://orcid.org/0000000157529640
Nazanin Sallari: https://orcid.org/0000000318684183
Abdolhamid Tajvar: https://orcid.org/0000-0002-6241-4909

Abstract

Objectives: Road traffic accidents are much higher than the global average in Iran. Since the main cause of road traffic accidents is attributed to driver's risky behaviors, the aim of this study was to investigate the knowledge, attitude, and violation of drivers toward traffic regulations in Bandar Abbas, Iran. **Methods:** The study was carried out among 562 drivers in Bandar Abbas using cluster sampling method. The data were collected through a valid and reliable researcher-made questionnaire that had four sections including items assessing the demographic, knowledge, attitude, and violation of drivers toward traffic regulations. **Results:** The mean score for drivers' knowledge, attitude, and violations were estimated to be 8.71 ± 2.5, 42.4 ± 7.6, and 56.7 ± 11.8, respectively. Drivers' knowledge and attitude levels were low; only 11.4% of men and 9% of women had good knowledge. The use of mobile phone (74.6%) and drunk driving (9.4%) were reported as the most frequent and the least frequent driving behaviors, respectively. There was a significant relationship between knowledge with attitude, knowledge with violations, and attitude with violations ($P < 0.001$). Marital status, age, and driving history were significantly associated with drivers' knowledge, attitude, and violations ($P < 0.001$). **Conclusions:** It is recommended to reduce driving violations by implementing targeted and comprehensive plans to raising the level of knowledge and attitude of drivers toward driving regulations.

Keywords: Attitude, driving violations, knowledge, traffic regulations

Introduction

Road traffic accidents are among the most common accidents that have endangered the lives of many people in the world, causing death and injury among large numbers of people especially among those aged 15–29 that are economically active age group.[1-3] According to WHO reports, the number of road accident has maintained its upward trend, reaching 1.35 million in 2016 and the risk of a road accident death remains three times higher in low-income countries than in high-income countries According to the Global status report on road safety 2018, mortality rates due to road accidents estimated by WHO in Iran was 20.5/100,000 population (higher than global rate).[4]

Access this article online

Quick Response Code:

Website: www.archtrauma.com

DOI: 10.4103/atr.atr_31_19

Address for correspondence: Dr. Abdolhamid Tajvar, Social Determinants in Health Promotion Research Center, Hormozgan Health Institute, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
E-mail: omid.tajvar@gmail.com

How to cite this article: Jahangiri M, Aghamolaei T, Mohseni S, Mohammadpour S, Sallari N, Tajvar A. Investigating Self-Reported Violations of the Drivers of Bandar Abbas City and Its Relation with Their Knowledge and Attitude Regarding Traffic Regulations. Arch Trauma Res 2019;8:219-28.

Received: 20-05-2019, **Revised:** 16-11-2019
Accepted: 26-11-2019, **Published:** 13-12-2019

In Iran, the most common cause of trauma and the most common cause of death from trauma was traffic accidents.[5] It shows insufficient attention has been paid to road safety and that a heavy fund is being in terms of lives lost, long-term injury, and pressure on healthcare service.

Many factors are associated with every traffic accident including environmental factors, technical factors (such as vehicle design and road design), and human factors. The results of recent studies also indicate that there is a significant relationship between high-risk driving and road injuries.[6-8] Traffic rules are one of the most important tools for road traffic management.[9] Many studies have confirmed that violating these rules increases the risk of road accidents.[10,11] Because the traffic safety culture differs between different communities, it is very important that the traffic safety management of each community be designed taking into account the traffic culture of the drivers of the same area.[12] One of the most important human factors influencing the traffic safety culture is the violation of traffic laws. Therefore, investigation on this topic is important.[9]

Since a large number of people use car every day and are involved in traffic accident, and given the fact that drivers' errors and violations have high contribution to the traffic accidents, it is very important to identify the key causes of this errors and violations and subsequently to manage driving behaviors and improve traffic safety. Knowledge and attitude toward traffic regulations are significantly associated with risky driving behaviors and play an important role in constructing effective road safety program.[13-16] Prior studies have elucidated the role of divers behavior on road accidents, and it seems that knowledge, attitude, and practice of drivers toward traffic regulation may be one of the most important determinants of road accidents.[6] Therefore, this study aimed to investigate self-reported violations of the drivers of Bandar Abbas city and its relation with their knowledge and attitude regarding traffic regulations.

Methods

This analytical cross-sectional study was carried out in Bandar Abbas in 2018. Bandar Abbas is a port city in Hormozgan province on the southern coast of Iran; many of its residents come from other ports of Iran for work. The target population included drivers with driver's license who were randomly assigned to 15 predetermined locations identified by cluster sampling method. At first, according to the map, the city of Bandar Abbas was divided into five points, and at each point, three locations were selected for random sampling. Informed consent was obtained from the study participants. The data were collected through a valid and reliable researcher-made questionnaire consisted of four sections including demographic questions (7 questions) as well as questions assessing knowledge (15 Questions), attitudes (15 questions), and offenses (25 items) of drivers toward traffic regulations.

The required sample size was calculated to be 600 people based on Cochran's formula. The validity of the questionnaire was established using a panel of experts so that the questionnaire was given to nine traffic officers and their comments were collected. Finally, the comments were applied in the final format of the questionnaire. The reliability of the questionnaire was examined using internal consistency methods and Cronbach's alpha coefficient. Cronbach's alpha for the whole questionnaire was 0.89.

For assessing the level of knowledge, 15 questions were used (one point for each correct answer and zero point for each wrong answer). Therefore, the total scores for the knowledge questionnaire will be 15. Subsequently, these scores were converted to percentages and divided into three categories, including poor knowledge (0%–49.99%), moderate knowledge (50%–74.99%), and good knowledge (75%–100%). Furthermore, questions related to drivers' attitude toward some traffic laws (such as eating and drinking while driving, crossing continuous lines, seat belt use, driving in forbidden places, "right of way," and driving with unauthorized speed) were designed using comments from traffic officers and health education specialist.

A four-point Likert scale was used for measuring drivers' responses to attitude (strongly agree: 1, agree: 2, disagree: 3 and strongly disagree: 4). After adding points and converting them into percentages, we placed them in three groups of attitude: weak attitude (0%–49.99%), moderate attitude (50%–74. 99%), and good attitude (75%–100%). The drivers' violations assessment was carried out through 25 questions taken from the list of traffic violations throughout the country and industrial and commercial free zones so that the drivers were asked how they would behave in each situation.

The answers were: "I usually do" (zero points), "I sometimes do" (one point), "I only do in an emergency" (2 points), and "I never do" (3 points). To obtain the total score of violations, the points in this section were summed up, and after being converted to percentage, level of drivers' violations was divided into three classes: high violations (0%–49.99%), moderate violations (50%–74.99%), and low violations (75%–100%). Finally, SPSS software (SPSS 22.0, IBM Corp, Chicago, USA) was used for data analysis.

Descriptive analysis of quantitative variables was performed using mean and standard deviation of the variables. Descriptive analysis of ordinal variables was performed using absolute and relative frequency determination. Chi-square test was used to compare the relationship between qualitative variables, and an independent *t*-test was used to determine the relationship between quantitative and dichotomous variables.

Results

A total of 562 drivers of 600 participated in the study and 38 drivers were excluded from the study due to missing or incomplete data. 76.3% (429 people) of the participants were

male and 23.7% (133 people) were female. The average age of the participants was 34.8 ± 10, between the ages of 18–84 years. Other demographic characteristics of the population are presented in Table 1.

The mean score for drivers' knowledge, attitude, and violations were 8.71 ± 2.55, 42.41 ± 7.68, and 56.78 ± 11.89, respectively. The mean and standard deviation of drivers' knowledge about driving regulations are given in Tables 2 and 3. The questions used to assessing knowledge (15 question), attitude (15 questions) and self-reported violations (25 questions) differ in content and are listed in the annexed tables.

After completing self-report questionnaire on driving violations, it was determined that use of mobile phones or similar communication devices during driving (74.6%) and drunk driving (9.4%) were reported as the most frequent and the least frequent dangerous driving behaviors, respectively. 40.9% of the drivers reported having been fined at least once in the previous year.

The results for drivers' knowledge, attitude and violations are presented in Table 4. As shown in this table, 10.9%, 36.7% and 59.4% of the participants had proper knowledge, attitude and practice toward traffic regulations.

Tables 5 and 6 show the relationship between drivers' knowledge and attitude toward traffic regulations and background variables including sex, marital status, educational level, and age and driving history.

To investigate the drivers' practice about 25 recorded traffic violations, they were asked to explain how they would behave in each of these situations. After completing the Self-Reported Driving violation Questionnaire, drivers status was categorized according to their Likert score on three levels : high violations (0%-49.99%), moderate violations (50%-74.99%), and low violations (75%-100%).Therefore, the lower the score for the driver, the more likely he is to commit a driving violations and vice versa.Table 7 shows the relationship between drivers' violations and background variables.

As seen in Table 8, using Pearson correlation matrix, a significant relationship was found between drivers' knowledge and attitude, drivers' knowledge and violations, and drivers' attitude and violations (p-value <0.001).

Discussion

The drivers' knowledge was reported to be very low in this study; only 11.4% (49 people) of men and 9% (12 people) of women had good knowledge toward traffic regulations. Many studies carried out in various countries showed a low level of driver's knowledge toward traffic regulations.[15,17-20] The study of relationship between drivers' knowledge of traffic regulations and background variables indicated that there was a significant relationship between drivers' knowledge and sex, marital status, educational level, age, and driving history. Men had higher level of knowledge than women and married people had higher level of knowledge than single ones. Multiple studies have shown significant relationship between age, sex, educational level, and driving history with drivers' knowledge levels.[16,19,21]

After using Pearson correlation matrix, it was determined that there is a significant relationship between knowledge, attitude, and driving violations [Table 7]. Therefore, it is recommended to reduce driving violations by implementing targeted and comprehensive plans to raising the level of knowledge and attitude of drivers toward driving regulations. There was

Table 1: Demographic characteristics of participants

Variable	Class	Frequency	Percentage
Gender	male	429	76.30
	female	133	23.70
Marital status	married	365	64.90
	single	197	35.10
Age (year)	18-24	70	12.50
	25-34	244	43.40
	35-44	141	25.10
	45-54	80	14.20
	55 and older	27	4.80
Educational level	Elementary school and junior high school	75	13.30
	high school and diploma	193	34.30
	Associate and Bachelor's degree	242	43.10
	master's or PhD degree	52	9.30
Driving history (year)	1-5	169	30.10
	6-10	153	27.20
	11-15	105	18.70
	16 and more	135	24.00

Table 2: The descriptive statistics of scores acquired by drivers answered to the questions of attitude and knowledge toward traffic regulation

Variables questions	Mean±SD	
	Attitude	Knowledge
Q1	1.148±2.82	0.499±0.46
Q2	1.056±2.78	0.498±0.42
Q3	0.920±3.28	0.434±0.75
Q4	1.012±2.96	0.496±0.43
Q5	1.111±2.52	0.336±0.87
Q6	0.933±3.32	0.429±0.76
Q7	1.183±2.45	0.499±0.46
Q8	0.882±3.45	0.362±0.85
Q9	0.956±3.31	0.457±0.70
Q10	1.119±3.02	0.498±0.55
Q11	0.946±3.28	0.494±0.58
Q12	1.136±2.50	0.499±0.54
Q13	1.194±2.53	0.415±0.78
Q14	1.167±1.98	0.314±0.11
Q15	1.131±2.22	0.498±0.46

no significant relationship between sex and attitude, while there was a significant relationship between attitude and other variables such as marital status, educational level, age, and driving history. Married people had a positive attitude, Moreover, drivers with driving license for more than 16 years who were aged over 55 years had a positive attitude toward safe driving. Yunesian *et al*. found a significant relationship between drivers' age and marital status and their attitude so that married people had a better attitude toward traffic regulations.[16]

Contrary to our findings, Yahia *et al*. found a significant relationship between gender and attitude and reported that men have weaker attitude toward driving regulations than women.[21] Akaateba and Amoh in Kumasi found that driver's attitude toward traffic violations is significantly associated with age and sex.[22] Nordfjærn *et al*. also showed that in both urban and rural areas, driver's attitude toward traffic safety rules is significantly associated with age and sex so that young people, especially men have weaker attitude toward traffic safety rules.[7]

Table 3: The descriptive statistics of scores acquired by drivers answered to the questions of self-reported violations toward traffic regulations

Variables questions	Violation Mean±SD
Q1	2.66±0.744
Q2	2.63±0.800
Q3	1.97±0.954
Q4	2.75±0.687
Q5	1.69±1.063
Q6	2.28±0.956
Q7	2.81±0.629
Q8	2.48±0.783
Q9	1.67±1.037
Q10	2.61±0.773
Q11	2.55±0.770
Q12	2.18±0.919
Q13	2.24±1.014
Q14	2.62±0.762
Q15	2.42±0.837
Q16	2.32±0.868
Q17	2.68±0.751
Q18	2.09±0.888
Q19	2.14±1.158
Q20	2.38±0.992
Q21	2.52±0.857
Q22	2.24±0.712
Q23	2.16±0.761
Q24	1.96±0.563
Q25	2.17±0.712

The results of investigating drivers' self-reported violations of traffic regulations indicated that 59.4% of drivers had low violations. In this regard, contradictory results were obtained in various studies. Perhaps, one of the reasons for this is the cultural difference between people of different countries.[3,6,7,20] This differences could be attributed to different geographical and sociocultural statuses of them.

Examining the relationship between demographic characteristics and drivers' violations indicated that there is no significant relationship between sex and drivers' violations while some other studies showed the opposite and confirmed more insecure practice in men than women.[7,19,23-25] However, marital status, educational level, age, and driving history were significantly associated with driver's violations toward traffic regulations. In this regard, the finding of Tajvar *et al*. was not consistent with our results, and they found no significant relationship between violations and demographic characteristics.[19] Married people showed better practice, knowledge, and attitude than single ones. Drivers with longer term driving experience also reported better practice so that the best practice was reported for drivers holding driving license for more than 16 years (76.3%). Furthermore, consistent with our results, a significant relationship was found between drivers' age and practice in some studies, that is, young people had the most unsafe driving behaviors.[8,13,22,23,26]

Mobile phone use was reported as the most frequent unsafe driving behavior and only 25.4% of drivers reported that they never commit this violation. A high percentage of drivers reported unauthorized speed and only 28.6% stated that they are not willing to commit this violation at all. A study carried out in Bandar Abbas, Iran revealed about 66% of drivers were frequently committing speed limit violations.[27]

In our study, a significant relationship was found between drivers' knowledge level and attitude, their knowledge level and practice, as well as their attitudes and practice. Consistent with

Table 4: Knowledge, attitude and violations of the population towards traffic regulations

Variable	Mean±SD	Class	Frequency	Percentage
Knowledge	8.71±2.55	Low (5.52±1.84)	155	27.60
		Moderate (9.48±1.11)	346	61.60
		High (12.5±0.74)	61	10.90
Attitude	42.41±7.68	Weak (26.08±3.97)	23	4.10
		Moderate (38.59±3.90)	333	59.30
		Good (50.41±4.18)	206	36.70
Violations	56.78±11.89	High (29.06±5.61)	48	8.50
		Moderate (49.67±4.87)	180	32.00
		Low (64.6±4.67)	334	59.40

Table 5: Relationship between drivers' knowledge of traffic regulations and background variables

Knowledge Level		Weak		Moderate		Good		χ^2	*P*
		Frequency	percentage	Frequency	percentage	Frequency	percentage		
Gender	male	99	23.10	281	65.10	49	11.40	18.24	<.0.001
	female	56	42.10	65	48.90	12	9.00		
Marital status	Married	77	21.10	239	65.50	49	13.40	24.8	<.0.001
	Single	78	39.60	107	54.30	12	6.10		
Educational level	elementary school and junior high school	15	20.00	53	70.70	7	9.30	12.83	0.046
	high school and diploma	48	24.90	114	59.10	31	16.10		
	Associate and Bachelor	77	31.80	145	59.90	20	8.30		
	master's or PhD degree	15	28.80	34	65.40	3	5.80		
Age	18-24	28	40.00	38	54.30	4	5.70	18.8	0.016
	25-34	75	30.70	145	59.40	24	9.80		
	35-44	27	19.10	90	63.80	24	17.00		
	45-54	20	25.00	53	66.30	7	8.80		
	55 = <	5	18.50	20	74.10	2	7.40		
Driving history	1-5	68	40.20	85	50.30	16	9.50	32.21	<0.001
	6-10	43	28.10	100	65.40	10	6.50		
	11-16	25	23.80	68	64.80	12	1.40		
	16 = <	19	14.10	93	68.90	23	17.00		

Table 6: Relationship between drivers 'attitudes toward traffic regulations and background variables

Attitude Level		Weak		Moderate		Good		χ^2	*P*
		frequency	percentage	frequency	percentage	frequency	percentage		
Gender	male	18	4.20	247	57.60	164	38.20	2.13	0.344
	female	5.0	3.80	86.0	64.70	42.0	31.60		
Marital status	Married	12	3.30	200	54.80	153	41.90	13.01	0.001
	Single	11	5.60	133	67.50	53.0	26.90		
Educational level	elementary school and junior high school	2.0	2.70	43.0	57.30	30.0	40.00	15.91	0.014
	high school and diploma	6	3.10	98	50.80	89	46.10		
	Associate and Bachelor	11	4.50	160	66.10	71	29.30		
	master's or PhD degree	4	7.70	32	61.50	16	30.80		
Age	18-24	5	7.10	49	70.00	16	22.90	22.25	0.004
	25-34	13	5.30	154	63.10	77	31.60		
	35-44	3	2.10	72	51.10	66	46.80		
	45-54	2	2.50	46	57.50	32	40.00		
	55 = <	0	0.00	12	44.40	15	55.60		
Driving history	1-5	11	6.50	115	68.00	43	25.40	21.58	0.001
	6-10	7	4.60	82	53.60	64	41.80		
	11-16	1	1.00	68	64.80	36	34.30		
	16 = <	4	3.00	68	50.40	63	46.70		

our results, Gopaul *et al*. observed a significant relationship between drivers' knowledge and practice.[17] Contrary to our results, there were other studies that indicate driver knowledge about traffic laws was not always put into practice.[28-31] Our study showed that attitude dimensions were significantly correlated with self-reported driving behavior and drivers' knowledge regarding traffic regulations. Yunesian *et al*. in agreement with our results stated that increase in attitude and driving behaviors accompanied with decreased number of road traffic crashes in Iranian drivers. Specifically, driver's attitude had the crucial effect[16] in contrast to other studies which found that attitudes toward traffic safety influenced involvement in traffic crashes.[32,33] Perhaps, the reason is because of specific conditions which change drivers to do unsafe driving. Culture of not obeying traffic regulations is one of them.

Although all of drivers had a driving license and had successfully passed the driving license examination, in our study, drivers' knowledge level was very low; therefore,

Table 7: The Relationship between drivers' violations toward traffic regulations and background variables

Violations Level		High		Moderate		Low		χ^2	*P*
		Frequency	percentage	Frequency	Percentage	Frequency	percentage		
Gender	male	37	8.60	142	33.10	250	58.30	1.07	0.585
	female	11	8.30	38	28.60	84	63.20		
Marital status	Married	16	4.40	112	30.70	237	64.90	26.96	< 0.001
	Single	32	16.20	68	34.50	97	49.20		
Educational level	elementary school and junior high school	4	5.30	19	25.30	52	69.30	16.33	0.012
	high school and diploma	16	8.30	49	25.40	128	66.30		
	Associate and Bachelor	26	10.70	90	37.20	126	52.10		
	master's or PhD degree	2	3.80	22	42.30	28	53.80		
Age	18-24	15	21.40	24	34.30	31	44.30	44.71	< 0.001
	25-34	22	9.00	94	38.50	128	52.50		
	35-44	7	5.00	45	31.90	89	63.10		
	45-54	4	5.00	11	13.80	65	81.30		
	55 = <	0	0.00	6	22.20	21	77.80		
Driving history	1-5	28	16.60	56	33.10	85	50.30	37.55	<0.001
	6-10	10	6.50	54	35.30	89	58.20		
	11-16	5	4.80	43	41.00	57	54.30		
	16 = <	5	3.70	27	20.00	103	76.30		

Table 8: Pearson correlation matrix for knowledge, attitude and violations toward traffic regulations

	Violations	Knowledge	Attitude
violations			
Pearson Correlation	1	0.205	0.521
P		<0.001*	<0.001*
Knowledge			
Pearson Correlation	0.205	1	0.201
P	<0.001*		<0.001*
Attitude			
Pearson Correlation	0.521	0.201	1
P	<0.001*	<0.001*	

*Correlation is significant at the 0.01 level (2-tailed).

holding purposeful retraining courses, especially for high-risk drivers with a lot of traffic violations on their driving record, and using mass media to improve public awareness are recommended.

Limitations

This study has some limitations which are important to take into account when the results are interpreted. First, instead of international standardized questionnaires, a researcher-made questionnaire was used to assess knowledge, attitude, and violations of drivers. Another limitation was that filling in the questionnaires was time-consuming which caused some drivers not to answer all the questions.

Conclusions

The results of our study showed that drivers' knowledge and attitude levels toward traffc regulations were low, and these are probably the reasons for high traffic accident and fatality rate in Iran. In a study by Wang *et al*., it was also found that there was a significant relationship between knowledge and attitudes of drivers and traffic accident.[34] Therefore, the direct interpretation of our results recommended approaches that improve knowledge and attitude levels of traffic regulations; after that, creating, maintaining, and improving knowledge, attitude, and practice of drivers toward traffic regulations should be assessed as the milestone in a holistic road safety program.

It is important to note that although drivers know that violating traffic regulations is dangerous, committing violations can be attributed to drivers' risk-taking behaviors. In places where there are fewer traffic policemen or control technologies, drivers may have more tendency toward risky driving besides their proper attitude toward traffic regulations. Hence, it is suggested to reduce the level of risk taking through adopting various policies.

Financial support and sponsorship

This work was supported by Hormozgan University of Medical Sciences with grant no 9453.

Conflicts of interest

There are no conflicts of interest.

References

1. Akbari ME, Naghavi M, Soori H. Epidemiology of deaths from injuries in the Islamic Republic of Iran. East Mediterr Health J 2006;12:382-90.
2. Bonilla-Escobar FJ, Gutiérrez MI. Injuries are not accidents: Towards a culture of prevention. Colomb Med (Cali) 2014;45:132-5.
3. World Health Organization. Global Status Report on Road Safety 2015. World Health Organization; 2015.
4. World Health Organization. Global Status Report on Road Safety 2018: Summary. World Health Organization; 2018.
5. Yadollahi M. A study of mortality risk factors among trauma referrals to

trauma center, Shiraz, Iran, 2017. Chin J Traumatol 2019;22:212-8.
6. Mirzaei R, Hafezi-Nejad N, Sadegh Sabagh M, Ansari Moghaddam A, Eslami V, Rakhshani F, *et al*. Dominant role of drivers' attitude in prevention of road traffic crashes: A study on knowledge, attitude, and practice of drivers in Iran. Accid Anal Prev 2014;66:36-42.
7. Nordfjærn T, Jørgensen S, Rundmo T. Cultural and socio-demographic predictors of car accident involvement in Norway, Ghana, Tanzania and Uganda. Saf sci 2012;50:1862-72.
8. Yan X, Radwan E, Guo D. Effects of major-road vehicle speed and driver age and gender on left-turn gap acceptance. Accid Anal Prev 2007;39:843-52.
9. Stanojević P, Jovanović D, Lajunen T. Influence of traffic enforcement on the attitudes and behavior of drivers. Accid Anal Prev 2013;52:29-38.
10. Parker D, Reason JT, Manstead ASR, Stradling SG. Driving errors, driving violations and accident involvement. Ergonomics 1995;38:1036-48.
11. Taylor MC, Lynam D, Baruya A. The Effects of Drivers' Speed on the Frequency of Road Accidents: Transport Research Laboratory Crowthorne; 2000.
12. Coogan MA, Campbell M, Adler TJ, Forward S. Examining behavioral and attitudinal differences among groups in their traffic safety culture. Transp Res Part F Traffic Psychol Behav 2014;26:303-16.
13. Kontogiannis T, Kossiavelou Z, Marmaras N. Self-reports of aberrant behaviour on the roads: Errors and violations in a sample of Greek drivers. Accid Anal Prev 2002;34:381-99.
14. Mohamed M, Bromfield NF. Attitudes driving behavior and accident involvement among young male drivers in Saudi Arabia. Transp Rese part F Traffic Psychol Behav 2017;47:59-71.
15. Scott-Parker B, Oviedo-Trespalacios O. Young driver risky behaviour and predictors of crash risk in Australia, New Zealand and Colombia: Same but different? Accid Anal Prev 2017;99:30-8.
16. Yunesian M, Mesdaghinia A, Moradi A, Vash JH. Drivers' knowledge, attitudes, and behavior: A cross-sectional study. Psychol Rep 2008;102:411-7.
17. Gopaul CD, Singh-Gopaul A, Haqq ED. A study in a hospital setting in Trinidad and Tobago, West Indies, on the psychological factors that cause road traffic collisions. Psychol Res Behav Manag 2017;10:157-64.
18. Tajvar A, Aghamolaei T, Ghanbarnejhad A, Mahdavi S, Eftekhari ET, Charsoughi M. Behavior-based safety in port industry: APretest – Intervention – Posttest study. Int Electron J Med 2010;2:71-6.
19. Tajvar A, Yekaninejad MS, Aghamolaei T, Shahraki SH, Madani A, Omidi L. Knowledge, attitudes, and practice of drivers towards traffic regulations in Bandar-Abbas, Iran. Electron Physician 2015;7:1566-74.
20. Kulothungan K. A cross sectional study on the knowledge awareness and practice of safety rules among the young college students in Trichy City Tamil Nadu. Int J Inf Res Rev 2015;2:1162-9.
21. Yahia HA, Ismail A, Albrka SI, Almselati AS, Ladin MA. Attitudes and awareness of traffic safety among drivers in Tripoli-Libya. Res J Appl Sci Eng Technol 2014;7:5297-303.
22. Akaateba AM, Amoh-R AA. Driver attitude towards traffc safety violations and risk taking behaviour in kumasi: The gender and age dimension. Int J Traffc Transp Eng 2013;3:479-4.
23. Farah H. Age and gender differences in overtaking maneuvers on two-lane rural highways. Transp Res Rec 2011;2248:30-6.
24. Romano EO, Peck RC, Voas RB. Traffic environment and demographic factors affecting impaired driving and crashes. J Safety Res 2012;43:75-82.
25. Vardaki S, Yannis G. Investigating the self-reported behavior of drivers and their attitudes to traffic violations. J Safety Res 2013;46:1-1.
26. Vlahogianni EI. Modeling duration of overtaking in two lane highways. Transp Res Part F Traffic Psychol Behav 2013;20:135-46.
27. Tavafian SS, Aghamolaei T, Madani A. Predictors of speeding behavior among a sample of Iranian commercial automobile drivers: An application of the theory of planned behavior. Traffic Inj Prev 2011;12:274-8.
28. Horvath C, Lewis I, Watson B. The beliefs which motivate young male and female drivers to speed: A comparison of low and high intenders. Accid Anal Prev 2012;45:334-41.
29. Nan X. The influence of liking for a public service announcement on issue attitude Communication Res 2008;35:503-28.
30. Waylen AE, McKenna FP. Risky attitudes towards road use in pre-drivers. Accid Anal Prev 2008;40:905-11.
31. Yilmaz V, Celik HE. A model for explanation of personal attitudes toward traffic of candidate drivers attending drivers' courses: Risky candidate driver's attitude model Transp Res Part F Traffic Psychol Behav 2008;11:233-41.
32. Hassan HM. Investigation of the self-reported aberrant driving behavior of young male Saudi drivers: A survey-based study J Transp Saf Secur 2016;8:113-28.
33. Iversen H. Risk-taking attitudes and risky driving behaviour. Transp Res Part F Traffic Psychol Behav 2004;7:135-50.
34. Wang X, Chen N, Shi Z, Zhao Z. An investigation on knowledge–attitude–practice about injury and the related factors among school children's parents in Jinan, China. Int J Inj Contr Saf Promot 2012;19:267-71.

Questionnaire

Drivers' Knowledge Questionnaire on Traffic Law

1. What does it mean to have a yellow light at the intersection?
   A. If the road is open let's continue
   B. be ready to continue the journey
   C. Stop behind the stop line
   D. If pedestrians are not passing we will continue the route
2. How fast can you travel while driving in the city?
   A. Inside the local passageways and squares is 30 km
   B. Inside the local passageways and squares is 20 km
   C. Inside the local passageways and squares is 40 km
   D. Inside the local passageways and squares is 50 km
3. The right of priority in three ways?
   A. With a device located on a wide street
   B. With a device that has reached three ways earlier
   C. With a device that moves directly
   D. With a device that moves at a fast pace.
4. Where the "NO Stop" sign is installed
   A. Stopping is only permitted for boarding and disembarking passengers.
   B. You can't stop for a moment.
   C. You can't park at all, but you can stop.
   D. It depends on the situation.
5. At the intersection for right turn
   A. Go right and then turn around
   B. Go left and then turn around
   C. You don't have to go right to turn right at intersections.
   D. Turn around the middle band.
6. You are driving at a permissible speed The car behind you wants to overtake Can you prevent it from overtaking?
   A. not at all
   B. Not unless it is safe to do so
   C. Yes, because the driver is doing something dangerous
   D. Yes, because the driver breaks the law
7. On Interrupted lines in the middle of the street
   A. Only bypass can be done
   B. Only one can overtake
   C. It can be bypassed but not overtaken
   D. Can be used to bypass and overtake
8. What does this sign mean?

   A. You only stop when children cross the street
   B. You stop even if the road is open
   C. You only stop when there is traffic
   D. Only stop when the red light is on
9. What does this sign mean?

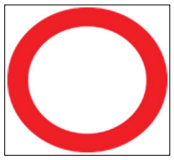
   A. No stop
   B. No entry

C. End of NO stop
D. No-stop range during the day

10. What does this sign mean?

A. You only have to drive at the speed indicated on the sign
B. This speed is the minimum speed recommended
C. You must not exceed the speed shown on the sign
D. The speed is different for road, water and air conditions

11. What does this sign mean?



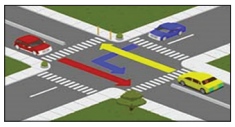
A. Stop
B. no stop
C. no entry
D. Entrance is prohibited on both sides

12. What does this sign mean?

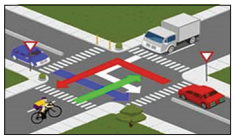
A. The front vehicles have the right of priority
B. Two-way end of line
C. You have the right to cross over the vehicle coming towards you
D. The road becomes one-way

13. What does this sign mean?

A. Entrance is prohibited on both sides
B. the right of way in traffic
C. no entry
D. no stop



14. How is the right of way at the crossroads for vehicles?
A. Yellow_ Blue_Red
B. Red_ Blue_ Yellow
C. Red _ Yellow _ Blue
D. Blue-Red – Yellow



15. How is the right of way at the crossroads for vehicles?
A. Blue _ Bike_ Truck_Red_
B. Bike _ Blue _ Red _ Truck
C. Bike _ Truck _ Red _ Blue
D. Bike _ Truck _ Blue _ Red

Drivers' Attitude Questionnaire on traffic law					
Number	**Items**	**Answers**			
		I strongly agree	**I agree**	**I disagree**	**I strongly disagree**
1	You can drive in forbidden places in an emergency				
2	I find it difficult to use a seat belt constantly				
3	The seat belt gives me a sense of security				
4	If I am not wearing a seat belt, I am always worried				
5	Using the seat belt ruins my look				
6	Keeping the distance from the front car while driving is essential				
7	In light traffic, you can cross the continuous lane of the road				
8	Wearing a seat belt is a sign of the driver's safety culture				
9	A full stop is required before entering the main street				
10	Eating and drinking while driving in any situation is dangerous				
11	Driving at too high a speed will cause me trouble				
12	Driving at speeds too fast is okay in some cases				
13	Driving at speeds too fast is exciting				
14	Driving at too high a speed indicates the personality of the person				
15	Most drivers in this city drive at speeds exceeding permitted				

Drivers' Violations Questionnaire on traffic law					
Number	**Items**	**I usually do**	**I sometimes do**	**I only do in an emergency**	**I never do**
1	Crossing the red traffic light				
2	Zigzag movements				
3	Drive with rear gear				
4	Dangerous offensive driving such as sudden bypass				
5	Exceeding speed limit (60-50-30 km/h)				
6	Illegal overtaking on two-way roads				
7	Drunk driving and driving after taking opioids				
8	Pass through the place where the stop sign is installed				
9	Using a mobile phone or similar communications while driving				
10	Effective technical defect or defect in night lighting system				
11	Hugging children while driving				
12	To overtake the right side of another vehicle				
13	Do not move the vehicle between two lanes				
14	Stop at the beginning and end of the screws				
15	Turn left of the axis of the road				
16	Stop where the "absolutely forbidden stand" sign is installed				
17	Throwing objects from the vehicle to the surface of the passageways				
18	Stop dubbing in passages				
19	Do not use seat belt				
20	Not having a driver's license				
21	Defective headlights, rear, brakes or headlights				
22	Riding children under 12 in the front seat				
23	Not having insurance card				
24	Eating, drinking and smoking while driving				
25	Any type of stoppage resulting in traffic disruption				